

DD 7



Massage promotes weight gain and improved behaviors in premature infants exposed to cocaine

CITATION: Wheeden, A., Scafidi, F. A., Field, T., Ironson, G., Vadeon, C., & Bandstra, E. (1993). Massage effects on cocaine-exposed preterm neonates. *Developmental and Behavioral Pediatrics, 14*(5), 318–322.

LEVEL OF EVIDENCE: IB1a

RESEARCH OBJECTIVE/QUESTION

To examine the therapeutic effects of massage on the growth and development of preterm cocaine-exposed neonates

DESIGN

X	RCT		Single Case		Case Control
	Cohort		Before-After		Cross Sectional

SAMPLING PROCEDURE

X	Random		Consecutive
X	Controlled		Convenience

SAMPLE

N=30	M age=30 weeks gestational age	Male=NR	Ethnicity=NR	Female=NR
------	--------------------------------	---------	--------------	-----------

NR = Not reported

PARTICIPANT CHARACTERISTICS

Criteria for inclusion were gestational age of less than 37 weeks, birth weight of less than 1500grams, no genetic anomalies, chromosomal aberrations, congenital heart

malformations, gastrointestinal disturbances, overt manifestation of congenital infection or maternal seropositivity for syphilis, hepatitis B, or human immunodeficiency virus, and central nervous system dysfunctions; a neonatal intensive care unit duration of less than 50 days; an entry weight into the study of between 1,000 and 1,650 grams, and a positive urine or meconium toxicology screen or a positive maternal self-report for cocaine.

MEDICAL DIAGNOSIS/CLINICAL DISORDER

Preterm cocaine exposed

OT TREATMENT DIAGNOSIS

N/A

OUTCOMES

Weight gain (disease or disorder)

Postnatal complications

Behavior (impairment): habituation, orientation, motor behavior, range and regulation of state, autonomic stability, reflexes

Measures	Reliability	Validity
Clinical data	NR	NR
Postnatal Complications Scale	NR	NR
Newfoundland Scale	NR	NR
Brazelton Neonatal Behavior Assessment	NR	NR

NR=Not reported

Frequency of Outcome Measurement:

Weight: daily

Postnatal complications: Two measures; pre- and postintervention

Brazelton: Two measures: Pre- and postintervention

INTERVENTION

Description

Infants in both the experimental and control groups received standard nursery care which included daily examination by a physician; feeding by a nurse, nurse's assistant, or "grandmother" volunteer; and weaning from the isloette at 1,700grams. Infants in the experimental group received massage therapy involving tactile and kinesthetic stimulation according to a specific protocol. The massage involved 3 standardized 5-minute phases.

Who delivered

A trained research assistant

Setting

Hospital (intermediate care)

Frequency

Three 15-minute periods during 3 consecutive hours each day

Duration

10 days

Follow-up

Pre- and postintervention

RESULTSWeight Gain:

- Massaged infants averaged a 28% greater weight gain than the control group infants over the period of treatment ($t [28]=-2.79, p=.009$)
- Using an analysis of covariance to examine daily weight gain, the massaged infants averaged a greater daily weight gain than the control group ($F [1,29]=7.90, p <.01$)

Postnatal Complications:

- Using a group by day repeated measures analysis of variance on the Postnatal Complications Scale, the authors found that both groups demonstrated fewer postnatal complications at the end of the study ($F [1,27]=25.74, p<.001$).
- The massage group had significantly fewer complications by the 10th day ($F [1,27]=4.13, p <.005$).
- The same results were found on the Newfoundland Scale ($F [1,14]=4.13, p=.06$).

Behavior:

- The massage group had better motor scores at the end of the treatment period ($F [1,17]=22.47, p <.005$) whereas the control group remained the same.
- The massaged group showed improved orientation at the end of the treatment period and had significantly fewer stress behaviors by day 10 ($F [1,27]=8.05, p <.025$), whereas the control infants remained the same across the treatment period.

CONCLUSIONS

- The findings suggest that massage therapy can improve the clinical course of cocaine-exposed preterm infants.
- The improvements in weight gain, motor behavior, and reduced stress behaviors may contribute to well-being and facilitate parent–infant interactions, which might later affect development.
- Intervention programs should be designed to provide preterm infants with massage therapy.

LIMITATIONS

- As many as 85% of the subjects in the study were poly-drug exposed (alcohol, tobacco, and marijuana in addition to cocaine).
 - The subject recruitment was unclear.
 - The amount of treatment of touch pressure was unclear; not replicable.
 - Years of the cohort were not specified; important to compare cocaine-exposed medical protocols.
 - Latency effects of treatment were not measured.
 - Reliability of the experimenters was not established.
 - Reliability of the assessors was not established.
 - Infants receiving massage treatment had a higher heart rate at baseline.
-
- Terminology used in this document is based on two systems of classification current at the time the evidence-based literature reviews were completed: *Uniform Terminology for Occupational Therapy Practice—Third Edition* (AOTA, 1994) and *International Classification of Functioning, Disability and Health (ICIDH-2)* (World Health Organization [WHO], 1999). More recently, the *Uniform Terminology* document was replaced by *Occupational Therapy Practice Framework: Domain and Process* (AOTA, 2002), and modifications to *ICIDH-2* were finalized in the *International Classification of Functioning, Disability and Health* (WHO, 2001).

This work is based on the evidence-based literature review completed by L. Diane Parham, PhD, OTR, FAOTA, and Nancy Bagatell, MA, OTR, with contributions from Christine R. Berg, PhD, OTR/L, and Patricia D. LaVesser, PhD, OTR/L.

For more information about the Evidence-Based Literature Review Project, contact the Practice Department at the American Occupational Therapy Association, 301-652-6611, x 2040.

Copyright 2004 American Occupational Therapy Association, Inc. All rights reserved. This material may be reproduced and distributed without prior written consent.